

REMARKS

After the foregoing amendment, claims 1, 3-4, and 6-12, as amended, are pending in the application. Claims 1 and 6 have been amended to more particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Claims 2 and 5 have been canceled. Applicant submits that no new matter has been added to the application by the Amendment.

Objections to the Drawings

The Examiner objected to the equation in Fig. 3A as lacking a dividing sign. The typographical error in Fig. 3A has been corrected by adding a dividing sign to the equation in Fig. 3A to make it consistent with Fig. 3B. The Examiner also objected to Figs. 4A and 4B for failing to show the detail necessary for proper understanding of the invention. Applicant has corrected Figs. 4A and 4B consistent with the description at page 5, lines 6-9. The Examiner further objected to the drawings for not providing a figure illustrative of the steps for obtaining motion vectors. Applicant has added Fig. 5, illustrative of the claimed method for finding motion vectors. Fig. 5 is supported in the specification at page 5, line 3 to page 6, line 12 and original claim 1. Having responded to the Examiner's objections, Applicant respectfully requests reconsideration and withdrawal of the objections to the drawings.

Claim Objections

The Examiner objected to claim 6 for including a misplaced comma. Applicant has amended claim 6 to delete the misplaced comma. Applicant respectfully requests reconsideration and withdrawal of the objection to claim 6.

Specification Amendments

The specification has been amended as follows:

1. A reference to new Fig. 5 has been added at page 4. Fig. 5 is supported at page 5, line 3 to page 6, line 12.
2. A description of STEP 0 of Figure 5 has been added to page 5. The description is supported at page 5, lines 3-9.

Rejection - 35 U.S.C. § 102

The Examiner rejected claims 1, 2, 6-11 under 35 U.S.C. § 102 as being unpatentable over U.S. Patent No. 5,576,772 (Kondo). Applicant respectfully traverses the rejection.

Claim 1 has been amended with the features recited in claim 2. Amended claim 1 now recites, *inter alia*, “A method of finding motion vectors for use in MPEG video encoding, the method comprising: generating from a full frame, (i) a first scaled frame having a reduced number of pixels as compared to the full frame and (ii) a second scaled frame having a reduced number of pixels as compared to the first scaled frame; performing a first, full, best match search of the second scaled frame to identify rough motion vectors; ..., wherein the first search uses four macroblocks.”

The Examiner states in connection with claim 2 that Kondo discloses at col. 9, lines 58-67 and Fig. 4A, using 64 macroblocks in the first search, which meets the limit of the four macroblocks recited in claim 2.

Applicant respectfully disagrees with the Examiner's interpretation of Kondo. Kondo discloses at col. 9, lines 58-67 a search range of 64 macroblocks. Quoting Kondo, “The predetermined search range, also referred to as the third hierarchical stage search range, is 8X8=64 (4X4) blocks”. Kondo also discloses at col. 6, lines 60-64, that the search is conducted with blocks of size 4X4 pixels.

The citation of four macroblocks in claim 2, (now amended claim 1) refers to the size of the block which is evaluated at the first search and not the search range over which the first search is conducted (see page 7, lines 2-4 of the application). Further, a macroblock is recognized by those skilled in the art as a block of 16X16 pixels (see page 2, lines 18-20) and not the 4X4 pixel block disclosed by Kondo. Also, the search range recited in amended claim 1 is performed over the entire frame (full best match search) and not over just the 8X8 search region taught by Kondo.

Because Kondo does not teach, suggest or disclose searching with a block of four macroblocks of 16X16 pixels each over the full range of a frame in the first search, as recited in amended claim 1, Applicant requests reconsideration and withdrawal of the §102 rejection of claim 1.

Further, it is respectfully submitted that since amended claim 1 has been shown to be allowable, claims 6-11 dependent on amended claim 1 are allowable, at least by their dependency. Accordingly, for all the above reasons, Applicant respectfully requests reconsideration and withdrawal of the §102 rejection of claims 6-11.

Rejection - 35 U.S.C. § 103

The Examiner rejected claim 3 under 35 U.S.C. § 103 as being unpatentable over Kondo in view of U.S. Patent No. 5,485,210 (Lim et al). The Examiner also rejected claim 4 under 35 U.S.C. §103 as being unpatentable over Kondo in view of U.S. patent No. 6,430,222 (Okuda). The Examiner further rejected claims 5 and 12 under 35 U.S.C. §103 as being unpatentable over Kondo. Applicant respectfully traverses the rejection of claims 3, 4 and 12. .

Claims 3, 4 and 12 are dependent on amended claim 1. Amended claim 1 recites "A method of finding motion vectors for use in MPEG video encoding, the method comprising: generating from a full frame, (i) a first scaled frame having a reduced number of pixels as compared to the full frame and (ii) a second scaled frame having a reduced number of pixels as compared to the first scaled frame; performing a first, full, best match search of the second scaled frame to identify rough motion vectors; ..., wherein the first search uses four macroblocks."

As discussed above, Kondo does not teach, suggest or disclose conducting a full first search with a block of four macroblocks, as recited in amended claim 1. The references Lim et al. and Okuda do not make up for the deficiency of Kondo. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the §103 rejection of claims 3, 4 and 12, dependent on amended claim 1.

Conclusion

Insofar as the Examiner's objections and rejections have been fully addressed, the instant application, including claims 1, 3, 4 and 6-12, is in condition for allowance and Notice of Allowability of claims 1, 3, 4 and 6-12 is therefore earnestly solicited.

Respectfully submitted,

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